



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B20/2
UNIQUE ID NUMBER: 4CM039
COMBUSTOR:
ENGINE TYPE: TF
BYPASS RATIO: 5.4
PRESSURE RATIO (π_{00}): 22.8
RATED THRUST (F_{00}) (kN): 91.6

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D_p/F_{00} (g/kN) or SN	17.0	117.5	32.4	1.7
AS % OF ORIGINAL LIMIT	86.9	99.6	37.9	6.9
AS % OF CAEP/2 LIMIT (NO _x)			47.3	
AS % OF CAEP/4 LIMIT (NO _x)			58.4	
AS % OF CAEP/6 LIMIT (NO _x)			66.4	
AS % OF CAEP/8 LIMIT (NO _x)			81.1	

DATA STATUS

- PRE-REGULATION
x CERTIFICATION
- REVISED (SEE REMARKS)

TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES
- DEDICATED ENGINES TO PRODUCTION STANDARD
- OTHER (SEE REMARKS)

EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE
(ANNEX 16 VOLUME II)

CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)

x OUT OF PRODUCTION (DATE: -)
- OUT OF SERVICE (DATE: -)

MEASURED DATA

MODE	POWER SETTING (% F_{00})	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO _x	SMOKE NUMBER
TAKE-OFF	100	0.7	0.903	0.07	4.26	13.25	0.7
CLIMB OUT	85	2.2	0.754	0.23	11.38	10.81	0.7
APPROACH	30	4.0	0.278	0.36	11.37	9.39	1.5
IDLE	7	26.0	0.102	8.11	49.71	3.75	0.7
LTO TOTAL FUEL (kg) or EMISSIONS (g)			363	1340	9963	2802	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				3	3	3	3
AVERAGE D_p/F_{00} (g/kN) or AVERAGE SN (MAX)				14.6	108.6	30.6	1.5
SIGMA (D_p/F_{00} in g/kN, or SN)							
RANGE (D_p/F_{00} in g/kN, or SN)				13.8-15.9	102.1-114.9	30.4-30.8	0-3.4

ACCESSORY LOADS

POWER EXTRACTION 0 (kW)
STAGE BLEED 0 (% CORE FLOW)

AT - POWER SETTINGS
AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.9-98
TEMPERATURE (K)	292.8-296.7
ABS HUMIDITY (kg/kg)	0.00814-0.0131

FUEL

SPEC	Jet A
H/C	1.93-1.94
AROM (%)	18-19.2

MANUFACTURER: CFM International
TEST ORGANIZATION: CFM56-7B Eval Engineering
TEST LOCATION: Peebles Test Operation (PTO), Peebles, Ohio
TEST DATES: 30/08/1997-12/09/1997

REMARKS

1. FAA Certification Report CR-997/2, 14 Nov 97
2. Engine S/N 874-136/01, 874-141/01, 874-146/01

Compliance with Fuel Venting requirements:

- ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)